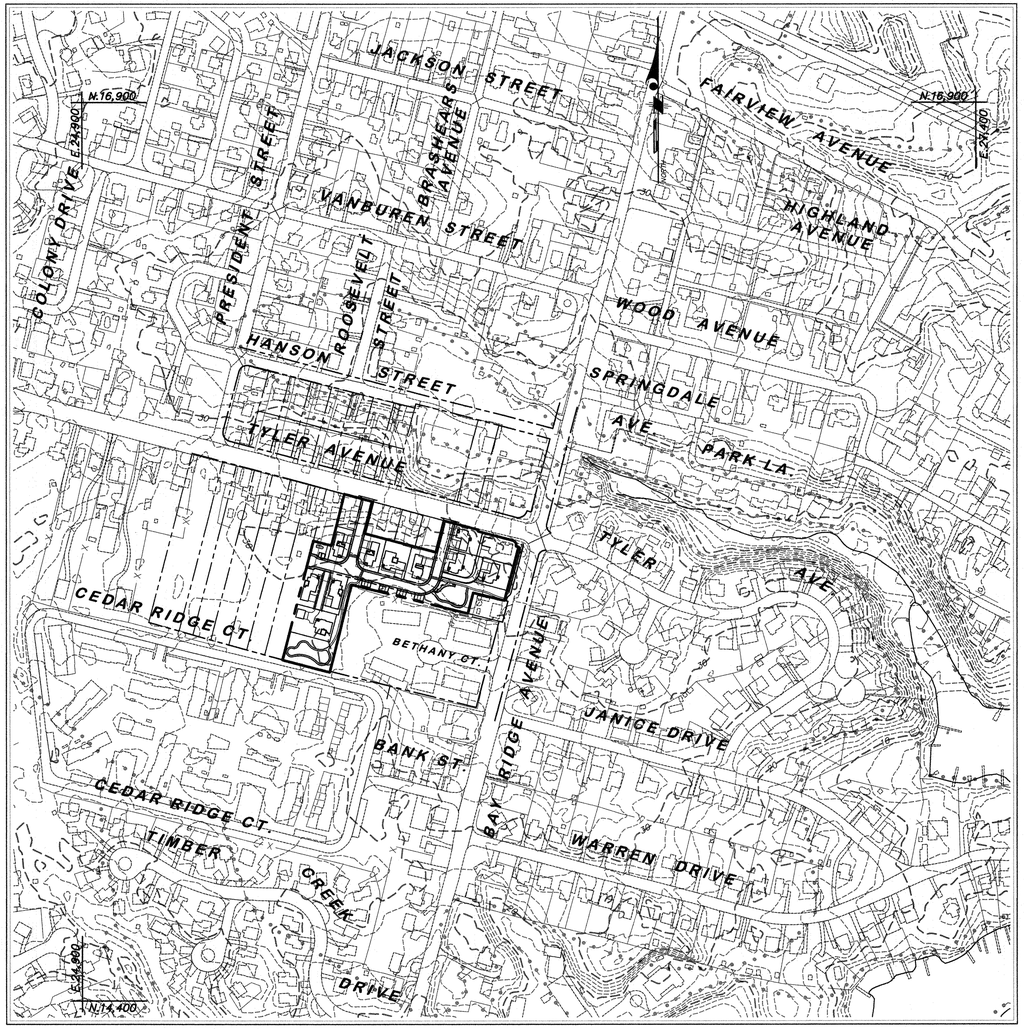
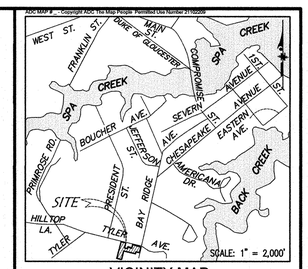
GRISCOM SQUARE

FOREST CONSERVATION & CONCEPT SWM PLAN



LOCATION PLAN
SCALE: 1" = 200'



VICINITY MAP

GENERAL NOTES

1. Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
   a.) Three calendar days as to the surface of all perimeter dikes, swales, ditches, perimeter slopes, and all slopes greater than three horizontal to one vertical (3:1).
   b.) Seven calendar days as to all other disturbed or graded areas on the project site.
2. Contact City of Annapolis Department of Neighborhood and Environmental Programs (410-263-7946) at least 48 hours prior to commencing any work associated with the approved grading or building permit.
3. The owner/developer shall provide for regular inspections, certified by a registered professional engineer, to be conducted during construction of stormwater management systems in accordance with accepted design procedures.
4. A design engineer shall perform full-time inspection during the excavation and installation of infiltration systems.
5. The design engineer shall provide reproducible certified mylar as-builts of stormwater management facilities and public improvements.
6. No trees shall be planted directly over storm, sewer, or water pipes. No trees shall be planted directly over any stormwater management device. No trees or shrubs shall be planted in any ditches, or swales.
7. All impervious areas of the site, including the entire area of the roof, parking area, and any other paved or graveled surface, must drain to the stormwater management system. It is the responsibility of the owner or developer to insure that all roof downspouts and grading or underground piping are directed towards the stormwater management system. If any portion of the impervious surface does not drain to the stormwater management system, additional stormwater management will be required to manage that area.
8. Sediment control measures must be inspected and maintained regularly to insure that the intended purposes are accomplished.
9. All disturbed areas not intended for paving shall be seeded as per specifications on these plans.
10. Refer to USDA-Soil Conservation Service "2011 Standards and Specifications for Soil Erosion and Sediment Control" for standard details and detailed specifications of each practice specified herein.
11. With the approval of the sediment control inspector, minor field adjustment can and will be made to insure the control of any sediment. Changes in sediment control practices require prior approval of the sediment control inspector and the Anne Arundel Soil Conservation District.
12. At the end of each working day, all sediment control practices will be inspected and left in operational condition.
13. Any disturbed earth left idle for periods exceeding 7 days shall be stabilized according to temporary specifications.
14. Contractor to contact Miss Utility (1-800-257-7777) and the City of Annapolis Department of Public Works (410) 263-7949 five working days prior to the start of work shown on these plans.
15. Dust control will be provided for all disturbed areas. Refer to USDA-Soil Conservation Service "2011 Standards and Specifications for Soil Erosion and Sediment Control" for acceptable methods and specifications for dust control.
16. Any variation from the sequence of operations stated on this plan requires the approval of the sediment control inspector and the Anne Arundel Soil Conservation District prior to the initiation of the change.
17. The existing utilities and obstructions shown are from the best available records and shall be verified by test pitting by the Contractor before construction. Necessary precautions shall be taken by the Contractor to protect existing services and mains, and any damage to them due to his operations shall be repaired immediately at his own expense.
18. Location and topography based on a survey by Drum, Loyka & Associates, LLC 2004. Bearings shown hereon are referred to the City of Annapolis coordinate system, using monument 18306, being a brass rod set in the back of curb at the intersection of Bay Ridge Avenue and Tyler Avenue, and monument 18307, being a brass rod set in the sidewalk near the intersection of Bay Ridge Avenue and Janice Drive.

SITE TABULATIONS

• Total Site Area:	133,060 S.F. (3.05 Ac.)
- Lot 1	6,274 S.F. (0.15 Ac.)
- Lot 2	5,274 S.F. (0.12 Ac.)
- Lot 3	5,702 S.F. (0.13 Ac.)
- Lot 4	6,399 S.F. (0.15 Ac.)
- Lot 5	7,076 S.F. (0.16 Ac.)
- Lot 6	5,833 S.F. (0.13 Ac.)
- Lot 7	5,475 S.F. (0.13 Ac.)
- Lot 8	5,387 S.F. (0.12 Ac.)
- Lot 9	9,085 S.F. (0.21 Ac.)
- Lot 10	7,025 S.F. (0.16 Ac.)
- Lot 11	4,642 S.F. (0.11 Ac.)
- Lot 12	4,507 S.F. (0.10 Ac.)
- 32' Public R-O-W	23,626 S.F. (0.54 Ac.)
- Private Road Esm't 'A"	2,190 S.F. (0.05 Ac.)
- Private Road Esm't 'B'	2,651 S.F. (0.06 Ac.)
- Open Space 'A'	1,965 S.F. (0.04 Ac.)
- Open Space 'B'	29,949 S.F. (0.69 Ac.)
• Site Zoning:	R-2

SHEET INDEX

DETAILS AND SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT

Following initial soil disturbances or redisturbance, permanent or temporary stabilization shall be completed within three calendar days for the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and seven days for all other disturbed or graded areas on the project site.

1. Permanent Seeding:

A. Soil Tests: Lime and fertilizer will be applied per soil tests results for sites greater than 5 acres. Soil tests will be done at completion of initial rough grading or as recommended by the sediment control inspector. Rates and analyses will be provided to the grading inspector as well as the contractor.

Occurrence of acid sulfate soils (grayish black color) will require covering with a minimum of 12 inches of clean soil with 6 inches minimum capping of top soil. No stockpiling of material is allowed. If needed, soil tests should be done before and after a 6-week incubation period to allow oxidation of sulfates.

The minimum soil conditions required for permanent vegetative establishment are:

a. Soil pH shall be between 6.0 and 7.0.
b. Soluble salts shall be less than 500 parts per million (ppm).
c. The soil shall contain less than 40% clay but enough fine grained material (> 30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if lovegrass or serecia lespedeza is to be planted, then a sandy soil (< 30% silt plus clay) would be acceptable.
d. Soil shall contain 1.5% minimum organic matter by weight.
e. Soil must contain sufficient pore space to permit adequate root penetration.
f. If these conditions cannot be met by soils on site, adding topsoil is required in accordance with Section 21 Standard and Specification for Topsoil or amendments made as recommended by a certified agronomist.

B. Seedbed Preparation: Area to be seeded shall be loose and friable to a depth of at least 3 inches. The top layer shall be loosened by raking, disking or other acceptable means before seeding occurs. For sites less than 5 acres, apply 100 pounds dolomitic limestone and 21 pounds of 10-10-10 fertilizer per 1,000 square feet. Harrow or disk lime and fertilizer into the soil to a depth of at least 3 inches on slopes flatter than 3:1.

C. Seeding: Apply 5-6 pounds per 1,000 square feet of tall fescue between February 1 and April 30 or between August 15 and October 31. Apply seed uniformly on a moist firm seedbed with a cyclone seeder, cultipacker seeder or hydroseeder (slurry includes seeds and fertilizer, recommended on steep slopes only). Maximum seed depth should be ¼ inch in clayey soils and ½ inch in sandy soils when using other than the hydroseeder method. Irrigate where necessary to support adequate growth until vegetation is firmly established. If other seed mixes are to be used, select from Table 25, entitled "Permanent Seeding For Low Maintenance Areas" from the current Standards and Specifications for Soil Erosion and Sediment Control. Mixes suitable for this are 1, 3 and 5-7. Mixes 5-7 are suitable in non-mowable situations.

D. Mulching: Mulch shall be applied to all seeded areas immediately after seeding. During the time periods when seeding is not permitted, mulch shall be applied immediately after grading.

Mulch shall be unrotted, unchopped, small grain straw applied at a rate of 2 tons per acre or 90 pounds per 1,000 square feet (2 bales). If a mulch-anchoring tool is used, apply 2.5 tons per acre. Mulch materials shall be relatively free of all kinds of weeds and shall be completely free of prohibited noxious weeds. Spread mulch uniformly, mechanically or by hand, to a depth of 1-2 inches.

E. Securing Straw Mulch: Straw mulch shall be secured immediately following mulch application to minimize movement by wind or water. The following methods are permitted:

(i) Use a mulch-anchoring tool which is designed to punch and anchor mulch into the soil surface to a minimum depth of 2 inches. This is the most effective method for securing mulch, however, it is limited to relatively flat areas where equipment can operate safely.

(ii) Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. If mixed with water, use 50 pounds of wood cellulose fiber per 100 gallons of water.

(iii) Liquid binders may be used. Apply at higher rates at the edges where wind catches mulch, such as in valleys and on crests of slopes. The remainder of the area should appear uniform after binder application. Binders listed in the 1994 Standards and Specifications for Soil Erosion and Sediment Control or approved equal shall be applied at rates recommended by the manufacturers.

(iv) Lightweight plastic netting may be used to secure mulch. The netting will be stapled to the ground according to manufacturer's recommendations.

2. Temporary Seeding:

Lime:100 pounds of dolomitic limestone per 1,000 square feet.
Fertilizer:15 pounds of 10-10-10 per 1,000 square feet.
Seed:Perennial rye - 0.92 pounds per 1,000 square feet (February 1 through April 30 or August 15 through November 1).
Millet - 0.92 pounds per 1,000 square feet (May 1 through August 15).
Mulch: Same as 1 D and E above.

3. No fills may be placed on frozen ground. All fill to be placed in approximately horizontal layers, each layer having a loose thickness of not more than 8 inches. All fill in roadways and parking areas is to be classified Type 2 as per Anne Arundel County Code - Article 21, Section 2-308, and compacted to 90% density; compaction to be determined by ASTM D-1557-66T (Modified Proctor). Any fill within the building area is to be compacted to a minimum of 95% density as determined by methods previously mentioned. Fills for pond embankments shall be compacted as per MD-378 Construction Specifications. All other fills shall be compacted sufficiently so as to be stable and prevent erosion and slippage.

4. Permanent Sod:

Installation of sod should follow permanent seeding dates. Seedbed preparation for sod shall be as noted in section (B) above. Permanent sod is to be tall fescue, state approved sod; lime and fertilizer per permanent seeding specifications and lightly irrigate soil prior to laying sod. Sod is to be laid on the contour with all ends tightly abutting. Joints are to be staggered between rows. Water and roll or tamp sod to insure positive root contact with the soil. All slopes steeper than 3:1, as shown, are to be permanently sodded or protected with an approved erosion control netting. Additional watering for establishment may be required. Sod is not to be installed on frozen ground. Sod shall not be transplanted when moisture content (dry or wet) and/or extreme temperature may adversely affect its survival. In the absence of adequate rainfall, irrigation should be performed to ensure establishment of sod.

5. Mining Operations:

Sediment control plans for mining operations must include the following seeding dates and mixtures:

For seeding dates of February 1 through April 30 and August 15 through October 31, use seed mixture of tall fescue at the rate of 2 pounds per 1,000 square feet and sericea lespedeza at the minimum rate of 0.5 pounds per 1,000 square feet.

6. Topsoil shall be applied as per the Standard and Specifications for Topsoil from the current Maryland Standards and Specifications for Soil Erosion and Sediment Control.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies-

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.

b. Apply fertilizer and lime as prescribed on the plans.

c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:

i. Soil pH between 6.0 and 7.0.

ii. Soluble salts less than 500 parts per million (ppm).

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.

iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration.

b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.

c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches. B.13

d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:

a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application

a. Erosion and sediment control practices must be maintained when applying topsoil.

b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.

c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading B.14 and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates or both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

DESIGNED: R. MANNIX	DRAWN:
ORIG. DATE: 08-31-06	
MODIFIED BY/DATE: KLY/EW ~ 2014-15	
CADD DWG #: BP12804	
DLA PROJECT #: BP12804	

REVISIONS TO APPROVED PLANS

No.	DATE	BY	DESCRIPTION

Drum, Loyka & Associates, LLC
CIVIL ENGINEERS - LAND SURVEYORS
1410 Forest Drive, Suite 35
Annapolis, Maryland 21403
Phone: 410-280-3122 · Fax: 410-280-1952
www. drumloyka.com

"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Engineer under the laws of the State of Maryland, license no. 18521, expiration date: 12-06-15

STATE OF MARYLAND · MICHAEL K. DRUM · No. 18521 · PROFESSIONAL ENGINEER

OWNER/DEVELOPER:

MR. JOHN PILLI
C/O PILLI DEVELOPMENT CO, INC.
197 HANOVER STREET
ANNAPOLIS, MARYLAND 21401

2/25/15

COVER SHEET
FOREST CONSERVATION & CONCEPT SWM PLAN
GRISCOM SQUARE
CITY OF ANNAPOLIS
PARCELS 761-764
TAX MAP 15G GRID 7 PARCEL DISTRICT 6TH
ANNE ARUNDEL COUNTY, MARYLAND

SCALE: AS SHOWN	DATE: FEB. 23, 2015	PROJ. NO: BP12804	SHEET 1 OF 6

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